PUBLIC WORKS AND INDUSTRIES, IRELAND.

(SPECIAL GRANT.)

PIERS AND ROADS.—COUNTIES OF GALWAY AND MAYO.

REPORT

BY

COLONEL FRASER, R.E.,

TO

HIS EXCELLENCY THE LORD LIEUTENANT,

IN

REFERENCE TO THE EXPENDITURE OF THE GRANT IN AID FOR THE COMPLETION OF WORKS UNDERTAKEN BY THE PIERS AND ROADS COMMISSION, APPOINTED UNDER THE RELIEF OF DISTRESS (IRELAND) ACT, 1886. (RE-VOTE.)

Presented to both Houses of Parliament by Command of Her Majesty.

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REPORT BY COLONEL FRASER, R.E.

TO HIS EXCELLENCY THE LORD LIEUTENANT.

MAY IT PLEASE YOUR EXCELLENCY—

I have the bonour to submit a report on the expenditure of the Parliamentary Grant of £6,500, for the completion or improvement of certain of the works carried out in Mayo and Galway, by the Piers and Roads Commission, in 1886–7.

That Commission terminated its labours before the vote in question was passed in the autumn of 1887, and at your request I undertook to start and superintend the new expenditure.

On the 14th October, 1887, the Treasury approved of the suggestion to employ Messrs. J. Perry and P. C. Cowan, two of the County Surveyors of Mayo and Galway, to execute the works, and to remunerate them by a per-centage on the sums expended under their direction.

The decision of Parliament to grant the £6,500 did not become known till late in the year 1887; some time was necessary for the preliminary arrangements, and tbe distress in the country had been much lessened by an abundant potato harvest; for these reasons, as well as those set forth in Appendix II. of the Report of 1887 of the Piers and Roads Commissioners, no work was commenced till the spring of 1888; but, in October, 1887, I revisited the Mayo and Galway works with the County Surveyors, and explained in each instance what had to be done.

Except in a few special cases wbere contracts seemed to be undesirable, it was left to the discretion of the County Surveyors to do the works by local contractors or by day work.

The County Surveyors not only carried out the executive duties, but also acted as sub-accountants, and further arranged for the payments on such works as were not done by contract; a service that had previously cost 2 per cent. of the expenditure, and which was somewhat beyond the scope of what they had been asked to do. The care and devotion they have shown in all these ways deserve most ample acknowledgment.

The procedure in the case of each work is given in detail in Appendix I., and the following is an abstract of receipts and expenditure under the vote in question.

Receipts by	Amount			Expenditure on	Amount			Remarks.
	£	s.	d.		£	s.	d.	
Parliamentary Grant, 1888–9,	6,500	0	0	Works, Mayo, . . .	2,467	14	6	
Sale of Tools, Mayo, . .	10	11	0	„ Galway, . .	3,170	0	0	
Sale of Tools, Galway, .	5	0	0	County Surveyor's percentage, . Mayo,	148	0	0	
Amount of Parliamentary Grant for 1887–8, expended in that year, and included in sum of £65 6s. 5d. contingent expenses, .	25	10	1	„ „ Galway,	158	10	0	
				Remitting Money, Postage, &c., ...	8	6	2	
				Contingent expenses, . .	65	6	5	
				Unexpended Balance, . .	523	4	0	
Totals, . £	6,541	1	1	Totals, . . £	6,541	1	1	

The works were commenced about May, 1888. The summer and autumn of that year were rough and unfavourable; but by the end of the year all were finished, or nearly so; and, accompanied by the County Surveyors, I inspected them in January, 1889, and consider them satisfactorily and permanently completed.

The most important of the roads made under these relief votes in Galway have already passed into the hands of the county authorities by coming under contract.

The Gowlah-road, the only work commenced in 1888, in addition to its general utility, promises, by opening up a new turf area, to prove very useful indeed; judging by the excessive traffic on the new Screeb and Costello road, and the number of turf vessels supplied by it in the small landing places made by the Piers and the Road Commissioners.

The region between Costello and Kilkerran, opened up by these roads, is less developed than any I have seen in Kerry, Donegal, or even Mayo. Consequently a relatively large number of works were undertaken there by the Piers and Road Commission, and their utility is apparent from their constant use.

While the rest of Ireland benefited by the exceptional potato crop of 1887, the Arran Islands undoubtedly suffered. For this reason rather more was spent there in 1888–9 than was proposed in the Report of 1887.

The entrance to the Killeany Harbour has now been much improved; widened throughout to 160 feet and marked out with beacons.

The rock cut landing at Ballyhees has been extended.

The Corrigaluggaun Pass has been rendered safe for human beings and cattle, and of all the works it affects the convenience of, perhaps, the greatest number of people.

The approaches of the line of bridges from Screeh to Kilkerran have been improved. The Breakwaters of Beelatravin and Shark Island have been extended, and the former has been furnished with a useful slip; while the extension of Shark Breakwater has added to the security of the landing place.

In Mayo the Lighthouse Cove has been very much improved.* It is the only point on Clare Island where a boat can get in at low water in rough weather.†

Inishkea has been furnished with a good breakwater and protected landing place, and when fishing becomes the principal trade of the Island, its value will be more felt.

The desirability of the Keel Harbour was pressed on the Commissioners more than in almost any other case; and it has been the most troublesome of all the works. It has now been improved by an extension of the protecting breakwater; by the clearing of the approaches; by the widening of the channel to 40 feet, and by strengthening and adding to the inner works.‡

This harbour with its road of approach gives a secure and convenient landing place on the south side of Achill Island for the small country vessels, and would furnish accommodation for a large number of fishing boats. I do not, however, see any sign of its being used.

The fact is that so much money has come into the island, chiefly earned owing to the migration of the inhabitants, who go yearly to work in England and Scotland, and partly through charitable subscriptions; that the people at Keel do not at present feel the need of going out to sea to fish for food.

Later, however, with increasing population, the want will be felt, and the harbour will be used.

On the occasion of my visit to Mayo and Galway in January last, I saw, or learned, that all the other structures of the Piers and Roads Commissioners were in good order, and the whole of them are now in such a condition that the county authorities may fairly be asked to take charge of them in the ordinary course.

It will be observed that the unexpended balance of the £6,500 is about £500, which there was not time to spend before the 1st April. If Government would sanction it, such a sum might, I submit, be placed at the disposal of the Grand Juries for future small improvements, which are sure to suggest themselves in the next few years, in the works in question.

The works of 1888 were in completion of those of the Piers and Roads Commission,

* Under the direction of Mr. Prendergast, who had engineering charge of the work.

† I have taken a row boat in on every occasion I have tried and often in a good deal of sea.

‡ During the progress of this work in 1888, it was stated in the press, and referred to in the House of Commons, that during the great storm of that year the Keel Harbour "had gone to pieces." This harbour consists chiefly of a long channel of approach blasted in hard rock, and of an inner basin excavated in the land. As might therefore be expected, the "dissolution" proved to be confined to some loose stones set up by the engineer in charge, in a way contrary to his instructions, and since then remedied. The whole of the concrete breakwaters have stood admirably.

and the experiment of an executive Commission has thus been tried, on a very small scale it is true. The competent can judge how far the money's worth has been obtained, in addition to the relief of distress.

The works have not been much used for fishing purposes, but they have contributed to the safety and convenience of the people. Those that have proved most useful are roads and harbours for working new turf areas, and for the distribution of seaweed further inland, as well as for facilities of general communication for men and cattle.

Money, subject to a labour test, was brought to the doors of those who could work, and whose needs were supposed to be the greatest; but, apart from the momentary relief of distress, I believe the system to be demoralizing and nationally injurious. The expectation is encouraged that, if only things become bad enough, Government can and will provide a *deus ex machinâ* in all cases of difficulty. This belief saps the self-reliance, and dulls the foresight of those who, unhappily, can only live, even in favourable times, by energetic self-help.

Nothing strikes one more than the extreme repugnance people here, as elsewhere, show to doing anything for themselves that they have the slightest hope Government will do for them. For this reason, I believe, uncertainty as to what Government means to do in the matter of public works, paralyses private enterprise, and delays the progress of self-help.

Payments obtained, half as charity and half as a right, are seldom earned by marketable labour,* and under such a system men may be excused for forgetting that "labour has its duties as well as its rights."

The question is important, not only in the West of Ireland, but on the corresponding coasts of Scotland, where the identity of physical as well as racial conditions must impress everyone who has lived in both.

Under these circumstances, I may, perhaps, be permitted to record what has suggested itself in carrying out these three years of relief work.

First, as to the state of the country in these districts.

The standard of food and clothing has, happily, of late risen greatly; and this year numbers of the country folk appeared to me to be more prosperous than in many English agricultural districts, except as regards dwelling-places, in which they do not seem to make progress.

New and much needed houses are being built by the priesthood; the churches are everywhere being rebuilt by subscriptions, and well-built and commodious schools, with teacher's "residences," are rising or have risen everywhere. The whole country is covered with these last landmarks of civilization The Government grants being two-thirds the estimated cost, the priesthood use a good influence by getting the people to find most or all of the balance in labour and materials. There is seldom anything for the children to do, so they are readily made to attend, and I gather that the clergy are alive to the fact that a knowledge of English is essential to all who must seek their fortunes elsewhere. In these respects there is a marked improvement (especially in 1888) in the worst districts in Ireland.

On the other hand, the population of these congested districts is, in some cases, as dense as in 1848, while, in the rest of Ireland, the reduction is enormous.

The food-producing power of the land is not increased, if anything rather diminished by use, and the limits of distribution of the fertilizing seaweed have long since been reached. In their natural eagerness to realize the turf crops, the rocky beds of the turf in many places near the sea has been scalped and will be useless for generations; and the supplies of turf, which would have long served the neighbourhood, have been shipped elsewhere for the sake of immediate gain. The same is true of English coal, but its removal does not diminish the cultivable area.

The inhabitants of these districts have been living on capital, the accessible portions of which are limited and in many places nearly exhausted; and their successors will have to pay the usual penalty.

If those who have influence with these people would expend some of their good-will in persuading them to husband their turf resources, and to give nature a chance to grow something on the rocky foundations of the bogs now being dug away, they would confer a boon on those that will come after.

The kelp trade received a check from which there is a partial recovery; but the supplies of the ocean are limited; and it is questionable whether they allow of any great development of this industry.

* I cannot better illustrate this popular feeling than by quoting a peasant's remark about a man whom he could not believe had a contract because of his setting to work "as if he was on day wages or employed by the Government."

Lastly, the producing power of the soil is dependent, in these districts, on seaweed; the quantities of which are again limited, and, as matters stand, can only be carried inland and distributed a short distance from the coast.

Fishing industries are being constantly suggested and newcomers bear much of their prospects. I have kept the subject before my mind perpetually while living in these districts, and the net result of all inquiries and observations leaves me somewhat hopeless of much future assistance from that source as an industry *by itself* in the districts in question.

We have, therefore, in these districts a population, if anything, increasing, destined to have a superior education, and with much more costly necessities than of old: with, on the other hand, reduced supplies of turf, and with the resources of the land diminished rather than increased.

If many of the *present* families find life a struggle now, how, in a few years, will the four or five families they each contribute to the population, with their better education, and a higher standard of comfort, live on the resources of the present area.

Should they have no other resource, then, judging by the analogy of the educated unemployed in India, we are not in the way of solving one of the most serious of Irish difficulties.

The precautionary instincts which influence the French peasantry to postpone marriage till they can provide for the future of their children are almost unknown in these parts of Ireland, and are, I should say, discouraged by many of the clergy. We have yet to see whether a higher standard of education and of living may ultimately induce more prevision; but, though some such signs can be traced, their influence so far is here but slight.

Looking to its facilities for coal supply, the east coast of Ireland is more favourably situated than many parts of England for the development of industries dependent on steam, and if such industries remain undeveloped, then, except in the extreme North-east, there is, I fear, no immediate likelihood of any relief in the West in the way of industrial employment.

Water power will, doubtless, be converted into electricity for the profitable working of machinery; but already direct water power for mills exists, is unused owing to the importation of flour, and will remain so, until security of contract and business habits encourage the influx and regulate the use of capital for new industries.

Fishing* as an industry does not attract these people: and the conditions on the west centre of the Irish coast are, it is submitted, the least favourable in the three Kingdoms.

Fish curing would seem to be a special necessity here, in the absence of facilities for carriage, and is almost unknown. The only favourable condition would be that the fish harvest should occur here earlier than elsewhere, and when the markets are not glutted with supplies from the more fortunately placed centres on the south and east coasts.

The prospect before us in these regions are, therefore, increasing population with a more costly standard of life, and with stationary if not diminished resources.

The progress of population in England fully keeps pace with the opportunities for employment, and facilities for migrating to the English labour markets are not likely to increase: and, in any case, are hardly available to those who only speak Irish.

Emigration, the natural, even if regrettable, alternative, is resisted as strenuously by some of the advisers of the people as the causes that lead to its necessity are encouraged: and a population is growing up which is told not to emigrate, but is not told how to live.

Two considerations are, under these circumstances, all important:—

1st. What can be done to remedy this state of things?

2nd. What should be done to anticipate future periods of depression?

The best hope is that the appreciation of greater comfort will drive men to go afield to obtain it instead of, as in former days, multiplying up to starvation point; with existence as the sole object.

This with the security of a settled Government and the consequent influx of money, is most likely to develop national self-help, and, the more these outlying communities are put in touch with a higher civilization, the more will they appreciate openings for

* In evidence given to the Royal Commission of 1887, of which Sir James Allport was Chairman, the writer has stated in detail the grounds for certain conclusions as regards fisheries on the west centre coast of Ireland; and the further information gathered in 1889, has, unhappily, only strengthened those unfavourable conclusions. The vagaries of fish migration will, it is hoped, bring about a better future, but, from whatever cause, 1888 seemed to have been the worst year for fish in these parts that has been known for a long time.

providing for themselves,* and will learn that industries are not made by Acts of Parliaments, hut by the united efforts of capital, labour, and organization. For this reason I think these remote districts, some of them 30 to 40 miles from a telegraph office, should, at all events, be connected by telegraph with the national system.†

The contention that these extensions would not be self-supporting can hardly justify refusal when a tslegram from Ventnor to the Orkneys costs no more than from Ventnor to Ryde.

I have msntioned telegraphs first because of their small cost, but the works which will most influence these congested districts are, I helieve, railway extensions. These, at present, will not pay commercially and may never do so: and it is for etatesmen to say how far public money should be spent on them; but it would seem reasonable that when such works are, hy common consent, felt to be so desirahle that communities are prepared to support them hy local grants of money, the State ehould go as far ae its advisers feel is wise, in the dirsction of helping and promoting euch local efforts.‡

I take it the effect of railways in such districts are:—

To increase the sale and raise the price of surplus produce, and to distribute the stone and turf supplies of many areae, at present inaccessihle.

To give an inducement to fishing: and, if the industry has a future, to provide it with the first condition of euccess, namely, access to a market.

To distribute over a wider area sea-weed, manure, lime, &c., so as to increase in the neighhourhood of such lines the cultivable area, and thus to provide for more cultivators.

To bring new lahour markets within every-day reach of these populations.

To hring the people into contact with English-speaking communities and in touch with a higher civilization, and to lead by its influences to higher aims of life, and to the destruction of the apathy of present surroundings.

To facilitate migration, and, if need he, emigration, for both of which the new education will give better prospects of success.

Great harbours have not been euggested, because it is helieved it would be the height of folly to throw large sums of money into the ssa in the hope, unsupported hy evidence, that then and there fish must come out of it.

So much for what may perhaps be thought justifiahle to lessen the difficulties of the future.

In India we have extended the survival of the "fittest" to that of the whole, with the result that we have to organize beforehand for inevitable famines.

I fear it may not always be unnecessary to do the latter in these parts of Ireland, where, however, the poorest are, happily, often among the hardiest of the population.

If, before difficulties arise, Government were to decide on the most desirahle railway works of emergency for thsse districts: schemes for them could he completely prepared, so that, should relief, unhappily, become imperative, labour markets could be at once opened hy the construction of these railroads on ordinary commercial lines, hut at the expense of the State; the ahle-bodied could thus earn wages in a free market; while the works would tend to render less likely the recurrence of the necessity.

No system of relief can be free from an evil influence on the recipients: but this one would, it is thought, he less enervating than that of which we were the exponents. And it would have this great advantage that Government could put it into instant operation: on the best lines that could be previously devised: instead of heing "rushed" into

* Among the best workers I met were the men at Keel in Achil, who had been constantly to England for the labour season. In two neighbouring villages, where employment was even more desired, but where few had migrated, it was impossible to complete the work in hand.

† *Vide* evidence before Royal Commission on Irish Public Works, 1887–8, where localities are specified. Apart from the popular benefit, these arrangements are urgently wanted for purposes of Government, and in time of war might be all important for maritime and military reasons. At present, the Admiralty have no signalling observatory on the great promontory of Achil Head, where hills over 2,000 feet high overlook the ocean: no doubt because these hills are 35 miles froma telegraph station. They have to use the low land on the Mullet with a poor sweep of the sea, and itself 10 miles from a telegraph office.

‡ It seems important to make all new lines on the Irish gauge. This will perhaps hereafter be narrowed all over Ireland to the English gauge, hut meantime nothing makes up for break of gauge.

emergency schemes which, for want of time, cannot be properly gone into and considered, and which are urged by a chorus of opinions, the only common basis of which is self interest.

In conclusion I have to add that the officers and men of H.M. Gunboats at Galway and Mayo have, as heretofore, co-operated most cordially, and given assistance without which the work could not have been done.

I have the honour to be,

Your Excellency's most obedient servant,

T. FRASER, *Colonel.*

HORSE GUARDS,

2*nd May*, 1889.

Attached is a plan showing the works dealt with in 1888–9.

APPENDIX I.

List of Works dealt with in 1888–9, out of the re-vote of £6,500 for completion of Piers and Roads in Mayo and Galway.

Union and Electoral Division	Situation and Nature of Work.	Total net cost. £	s.	d.	Contract or Daywork.	Particulars of Work
GALWAY:						
Inishmore, .	Killeany Harbour, .	450	0	0	Daywork,	Entrance has now been widened throughout to 160 feet, and to a depth over all of L.W.M. S.T.; 5 beacons have been erected; rock blasted 1,400 cubic yards.
Do., .	Kilmurry Pier, .	180	0	0	Do., .	Pier lengthened 15 feet; inner rock landing place refaced and shaped.
Do., .	Ballyhees Landing, .	90	0	0	Do., .	Rock landing extended inwards; rock blasted 360 cubic yards.
Barna, . .	Forramoyle Slip, .	30	0	0	Contract, .	Damaged portion replaced in solid concrete work.
Kilcummin, .	Bunnabowna Harbour,	80	0	0	Do., .	Ends of pier rebuilt in concrete, and work generally strengthened and entrance widened.
OUGHTERARD:						
Camus and Crumpaun.	Screeb Bridge & Road,	190	0	0	Do., .	Bridge and approaches completed and road improved.
Gorumna and Lettermore.	Corrigaluggaun Pass, .	140	0	0	Do, .	Causeway extended in granite 225 feet; certain rocks in the Pass blasted and 150 yards of passage cleared and levelled.
Gorumna, .	Tiernee Breakwater, .	50	0	0	Do., .	Breakwater raised above H.W. through its entire length of 240 feet; dry stone work 180 cubic yards.
Do., .	Rankin's Pass, . .	60	0	0	Do., .	Causeway ends strengthened and improved; parapets completed; old causeway improved.
Lettermore, .	Drinagh Pier, . .	70	0	0	Do., .	Original design completed; 300 cubic yards of heavy, dry granite work added.
Turlough, .	Inverbeg and Invermore Bridges.	100	0	0	Do., .	Approaches improved; wing parapets added or completed.
CLIFDEN:						
Owengowla, .	Kylesalia Bridge, .				Do., .	Approaches and parapet walls completed; gradient of road on north side cut down and improved.
Do., .	Acoonera Bridge, .				Do., .	Approach improved; wing parapets completed.
Knockboy, .	Mweenish Causeway,	110	0	0	Do., .	Portions of causeway raised and handrail fixed along one side.
Derrycanlagh,	Allanacally Pier, .	50	0	0	Do., .	Pier completed to full height throughout.
Roundstone, .	Inishnee Bridge, .	5	0	0	Do., .	Parapets of road of approach made good.
do., .	Beclatragh Breakwater	80	0	0	Do., .	Breakwater extended 9 feet to a total length of 200 feet; masonry completed; inner slip of 170 feet faced and paved in concrete.
Inisbboffin, .	Inishshark Breakwater,	140	0	0	Do, .	Breakwater and handrail extended.
Sfierna, .	Aughrisbeg Harbour, .	35	0	0	Do., .	Parapet completed; slip added.
Bunowen, .	Doohulla Harbour, .	10	0	0	Do., .	Ladder steps added.
Cushkillary, .	Glassillaun Breakwater,	150	0	0	Do., .	Raised throughout, and inner rocks blasted.
OUGHTERARD, CLIFDEN.	Invermore and Gowlab Road.	1,150	0	0	Do., .	Five miles of new road, with small bridges and culverts made across the neck of the Carna Peninsula; 800 yards of old road made good.
	Carried forward,	3,170	0	0		

LIST OF WORKS dealt with in 1888–9, out of the re-vote of £6,500 for completion of Piers and Roads in Mayo and Galway—*continued.*

Union and Electoral Division.	Situation and Nature of Work.	Total net cost.	Contract or Daywork.	Particulars of Work.
		£ s. d.		
	Brought forward,	3,170 0 0		
WESTPORT:				
Clare Island,	Inishturk, . . .	87 12 0	Contract,	Crack filled with concrete, and outer end of wall strongly underpinned.
Do., .	Lighthouse Cove and Chapel Pier, Clare Island.	334 12 11	Contract and Daywork.	(1). Slip improved by careful cutting and blasting of rock. (2) Junction of slip with road widened and made easier. (3). Breakwater carried out at level of shore ends to full length of rocks, about 125 feet on each side, and ends neatly and strongly finished; afterwards, 30 feet of inner end of south wall, and full length of north wall, raised 3 feet, and "gut" or water run on rocks, outside south B.W., filled with concrete. (4). Defective concrete rubble in south breakwater repaired with concrete. (5). Small slip at chapel, Portacoola, slightly improved, and some rocks cleared, and beacon straightened. (6). Five rings and 5 mooring chains fixed at cove and chapel.
Louisburg, .	Carrowmore Harbour,	392 12 8	Contract,	(1). Main wall extended 80 feet and finished plumb; parapet completed by extension to end of 115 feet. (2) Parapet raised along old work 1 foot, for length of 138½ feet. (3). All boulders removed from harbour area and formed into slip, with front wall in cement; (1) and (2) 265 $\frac{5}{11}$ cubic yards; (3) 386 cubic yards. (4). Small concrete slip for landing cattle, &c., formed inside outer end of main wall. (5) Some rocks blasted and removed. (6). Two beacons and 3 mooring rings provided.
Knappagh, .	Killeenakoff Bridge, .	16 0 0	—	Two archways solidly paved with blocks in concrete, 15 inches deep, approach improved, and short dry wall built.
Coraun, Achill,	Coraun Road, . .	50 0 0	—	Surfacing stone, coating with gravel, and improving some gullets.
Slievemore, .	Keel Harbour (Achill),	953 10 3	Daywork,	(1). Road from county road to harbour, length 840 yards, completed, and extension made round harbour. (2). Southern breakwater extended 60 feet, measured on top; total length on top now, 150 feet; total concrete added, about 216 cubic yards; heavily tarred timber bollard fixed in end of this wall, which is widened 4½ feet to 6 feet, on outmost, 15 feet. (3). Entrance mouth cleared of rocks to L.W.S.T. for width of about 70 feet from end of south breakwater; entrance passage straightened, made smooth, and widened to 40 feet; floor of harbour and passage made nearly level with mouth. (4). North breakwater strongly and neatly finished. (5). Inside of north wharf strengthened by concrete slope along base of wall, 4 feet high, for length of 56 feet, and wharf paved with concrete. (6). Turf removed, and strong battered wall (slope about 1 to 1), 150 feet long, formed, solidly founded below level of basin, from inner end of pas-
	Carried forward,	5 004 7 10		

LIST OF WORKS dealt with in 1888–9, out of the re-vote of £6,500 for completion of Piers and Roads in Mayo and Galway—*continued.*

Union and Electoral Division.	Situation and Nature of Work	Total net cost.	Contract or Daywork.	Particulars of Work.
		£ s. d.		
WESTPORT—*continued.*	Brought forward,	5,004 7 10		
Slievemore, .	Keel Harbour (Achill),	—	Daywork,	sage to end of western division of inner harbour. (7). Slip, 80 feet long, 9 feet wide, gradient 1 in 8, formed in corner of harbour, front wall in cement mortar, paving in concrete, hearting of hand-packed stones. (8). Western part of inner harbour widened from 30 to about 45 feet. (9). Wall 149½ feet long, with concrete return, 38 feet more at outer end, built along west side of channel, and ground levelled from top of wall to slope of hill, westward; 87½ feet of this wall built in cement mortar from bottom; for 30 feet more, rock is only 2½ feet below top of coping, and rest of wall is strong dry work, with footing and underpinning of concrete; all coping on this line set in concrete. (10). Six wooden bollards set in concrete basis round harbour. (11). Solid concrete beacon, about 14 feet high; body, 4 feet square, with heavy iron cross on top, erected on rocks opposite to southern breakwater
BELMULLET:				
Binghamstown, South.	Inishkea Harbour, .	480 0 0	Contract,	(1). The unfinished part of main wall, 33 feet long, has been completed by the addition of 43 cubic yards of concrete, and an extension made 45½ feet long on top, total length of wall now, 151½ feet; total concrete added, 367 cubic yards. (2). A slip, 42 feet long, 11 feet wide, has been built behind main wall, in continuation of wharf, with stair. (3). The old work has been repaired throughout.
Muingnahoo,	Portunlin Slip, . .	133 6 8	Do., .	Breach in front wall made good by concrete wall 93 feet long, about 7½ feet high, mainly on rock; rest of work extensively repaired, and made strong by underpinning with concrete and boulders on concrete.
—	Ballycroy Creek, .	20 0 0	Do, .	The rocks at mouth of creek have been removed to strand level, and a strong iron beacon erected on dangerous rock in channel near mouth of creek.
	Total net cost, .	5,637 14 6		

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SITES OF
PIERS & ROADS COMMISSION WORKS
& OF THE WORKS OF 1888-9.

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